a signal processing system with which, when the one measurement axis changes from the state of not irradiating the movable stage to a state of irradiating the movable stage, a degree of interference of the one measurement axis is estimated from a measurement result for the another measurement axis, and an initial value of the one measurement axis is set on the basis of the estimated degree of interference and a phase measured with the one measurement axis.

REMARKS

Claims 1-30 are pending. By this Amendment, claim 10 is amended. The attached Appendix includes a marked-up copy of the rewritten claim (37 C.F.R. 1.121(c)(1)(ii)).

Claim 10 is objected to for use of the word "diverges." Applicants submit that the above amendment to claim 10 overcomes this objection without narrowing claim 10.

Claims 10-15 and 24 stand rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,523,841 to Nara et al. In addition, claims 1-9, 16-23 and 25-30 stand rejected under 35 U.S.C. §103(a) over Nara et al. These rejections are respectfully traversed.

Nara et al. discloses a stage measuring arrangement in which a single stage is provided on a base. Nara et al. deals with the problem that the movement distance of the stage is limited by the length of the movable mirror on the stage. See col. 1, line 57 - col. 2, line 7. In order to address this problem, Nara et al. uses an interferometer system 12-14 having a plurality of axes S1-S3, which selectively irradiate the movable mirror 8. See, for example, Fig. 1, col. 2, lines 17-35 and col. 4, lines 23-48. The procedures performed by Nara et al. when one of the axes S1-S3 switches from a non-irradiating state to a state in which it irradiates the movable mirror is discussed at col. 3, lines 7-16, col. 4, line 54 - col. 5, line 49 and col. 7, lines 1-7. In particular, Nara et al. teaches that the result of measurement made by the interferometer that has been in operation is used to initialize the interferometer

that has switched from the non-irradiating state to the irradiating state. See col. 5, lines 1-17. Also see col. 7, lines 1-7.

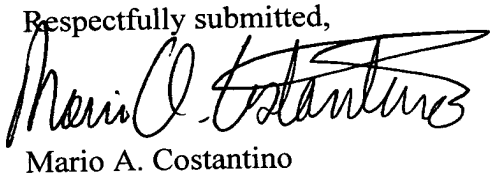
With respect to claim 10, Nara et al. does not disclose the claimed signal processing system with which "a degree of interference of the one measurement axis is estimated from a measurement result for the another measurement axis, and an initial value of the one measurement axis is set on the basis of the estimated degree of interference and a phase measured with the one measurement axis." Accordingly, independent claim 10 and its dependent claims are not anticipated by, or rendered obvious over, Nara et al.

With respect to independent claims 1 and 2, the Office Action takes official notice that it is known to provide a plurality of stages on a movement plane. However, even accepting the Office Action's assertion, Hara et al. does not disclose the second measurement system "which measures an amount of positional deviation of each of the plurality of movable stages from a predetermined reference position..." as recited in independent claim 1, or the second measurement system "which continuously measures positions of the plurality of movable stages within a second measurement range partially overlapping the first measurement range" and the control system recited in independent claim 2. Accordingly, independent claims 1 and 2, as well as their dependent claims, are not disclosed or suggested by Nara et al., even when the Office Action's "official notice" is taken into account.

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe anything further would be desirable to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



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MAC/ccs

Enclosures:
Appendix
Petition for Extension of Time

Date: April 8, 2002

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APPENDIX

Changes to Claims:

The following is a marked-up version of the amended claim:

10. (Amended) A stage device comprising a movable stage that is movable at a predetermined degree of freedom;

an interferometer system which measures an amount of displacement of the movable stage by directing a measurement light at the movable stage and causing a reflected light thereof to interfere with a reference light, wherein the interferometer system has a plurality of measurement axes of the measurement light and is disposed such that even if one of the plurality of measurement axes ~~diverges from~~is not irradiating the movable stage, the amount of displacement can still be measured by another measurement axis; and

a signal processing system with which, when the one measurement axis changes from the state of ~~diverging from~~not irradiating the movable stage to a state of irradiating the movable stage, a degree of interference of the one measurement axis is estimated from a measurement result for the another measurement axis, and an initial value of the one measurement axis is set on the basis of the estimated degree of interference and a phase measured with the one measurement axis.